Meeting Minutes
CALFED Water Quality Technical Group Meeting
December 9, 1996

Attendees: Lance Johnson, Phyllis Fox, Ted Roefs, Rick Humphreys, Peter Standish-Lee, M. Alemi, B. Herkert, Raymond Tom, Joel Trumbo, Ken Cawley, K.T. Shum, Tom Grovuhoug, Randy Lee, Linda Mercurio, Wayne Verrill, Rich Brewer, Pete Rhoads, Walter Ward, Bryan Stuart, Gail Louis, Stephen Murrill, Bob Berger, Vicki Willis, Chi Fue, Tom Zuckerman, John Sanders, David Supkuff, Bill Croyle, Fawzi Karajeh, Elaine Archibald, David Forkel, Kathy Wannion, and Jeanette Thomas.

CALFED Staff: Rick Woodard, Ron Ott, Carol Howe, Judy Heath, John Gaston, John Dickey, Dale Flawers, Ed Marlow, John Davies, and Sarah Holmgren.

Rick Woodard began the meeting with introductions of the CALFED water quality team and meeting attendees. Next, Rick explained that the purpose of the meeting was to develop a list of potential water quality projects for early implementation. He briefly reviewed the three CALFED phases, mentioning that Phase I had been completed and that we are currently in Phase II. Phase III will build on Phase I and II, culminating in the programmatic Environmental Impact Statement. Rick also discussed the outcome of the last water quality technical group meeting on November 20. He indicated that the CALFED team had received a great deal of input from the attendees and has taken that input into account though clarification of the 32 water quality actions.

Rick then focussed the meeting on a discussion of the water quality actions associated with dilution. It was decided that dilution actions would remain as part of the 32 actions because they may be important, particularly with respect to agricultural drainage and habitat restoration.

Following Rick, Judy Heath explained that to further clarify the 32 actions, the actions had been organized into five groups: Watershed Coordination, Water Treatment and Wastewater Surcharges, Agricultural Drainage, Urban and Industrial Runoff, and Mine Drainage. She mentioned that the handout packet was divided into these five groups and that each attendee was assigned to participate in one of these work groups.

The morning session ended with attendees breaking into five work groups to identify a list of projects for early implementation. In the afternoon, the five groups came together to discuss each group's project list. The details of each work group's early implementation project list follows.

CALFED water quality actions that projects correspond to follow each project.

D-033137

URBAN AND INDUSTRIAL RUNOFF

Facilitated by: John Davis and Sarah Holmgren

Participants: Elaine Archibald, David Supkoff, Gail Louis, Randy Lee, Sarah Holmgren, and John Davis.

The group reviewed the informational materials prepared for them and had the following comments.

- Cadmium and Chlordane should be added to the list of parameters of concern associated with urban runoff.
- Chloropyrifos should be removed from the list of parameters of concern associated with urban runoff because it is not used in urban areas. Used on rice.
- Later analysis should use urban runoff data from individual cities rather than assume that Sacramento data is applicable everywhere.
- Questioned the assumption that only wet weather data be used in the analysis. Suggested use of between-storm as well when it is available.
- Action 18 should be reworded to read "Reduce urban and industrial water quality parameter of concern loadings to the Delta and its tributaries through enforcement of existing storm water permit conditions"

The group then developed the following list of projects:

1. Apply standards for new development to rapidly urbanizing areas (when not in a city). (Action 20).
2. Establish DPR outreach program to promote voluntary integrated pest management in coordination with other agencies. (Action 32A).
3. Provide financial incentives to cut erosion at construction sites. (Action 19).
4. Provide seed money and technical assistance for citizen monitoring/restoration groups. (Action 19).
5. RWQCB must require toxicity monitoring as a storm water permit condition. (Action 18).
6. Storm water detention basins should be built in urban watersheds shown to be a major source of metals. (Action 17)

7. Include smaller cities in storm water program by regulation or voluntary effort. (Action 18).

8. Improve street-sweeping and garden waste pick-up in larger cities. (Action 18).

The group had two other suggestions which could not be characterized as a project.

- Need to address wash water from gas stations through an incentive program.
- Monitoring by all parties should be coordinated to maximize usefulness of data.

MINE DRAINAGE

Facilitated by: Carol Howe and Ron Ott

Participants: Linda Mercurio, Bill Crayle, Rick Humphreys.

The group reworded the mine drainage actions as follows.

22A Reduce tributary and Delta metal loadings (Cd, Cu, Zn) by implementation of moderate onsite mine drainage remediation developed in site-specific at inactive and abandoned mine sites.

22B Reduce trib & delta metal loadings (Hg) by implementation of moderate on-site mine drainage remediation measures developed in site-specific studies at inactive & abandoned mine sites.

Potential implementation projects.

High Priority:

1.) BALAKLALA MINE (Above Shasta West Squaw Creek). (Action 22A).
   - A. Weil Portal- water diversion and infiltration control, full scale facility optimize O & M studies.
   - B. Anoxic limestone drain.
   - C. Waste relocation & revegetation.

2.) PENN MINE
   Waste relocation
   Matching funds available
   Env. documentation complete

3.) MAMMOTH MINE
   Waste rock relocation or regrading.

4.) IRON MTN MINE

Erosion control
Surface water diversions
Detain water for treatment

5.) MT DIABLO
-Significant load to delta 95% from one tailings pre
-Tailing treatment or relocation

6.) MERCURY RECYCLING PROGRAM ☆
Incentive & education program
Target Yuba, Feather, Bear, Consumnes & America

7.) GREENHORN MINE-
-Erosion control
Surface water diversion
Pilot mine sealing project

8.) AFTERTHOUGHT MINE
Infiltration control
Portal evaluation
Mine backfilling

9.) CACHE CREEK MINE SITES (Tribs to Cache Creek)
ABBOTT- tailing relocation or processing (use home stake mine cooperatively)
ELGIN- tailing relocation or processing
☆Coordinate with Cache Creek Watershed Group.

AGRICULTURAL DRAINAGE

Facilitated by: John Dickey

Participants: Manucher Alemi, Wayne Verrill, Fawzi Karajeh, Lance Johnson, Joel Trumbo, John Sanders, Tom Zuckerman, Bob Herkert, Kathy Mannion, Bryan Stuart, Stephen Murrill, David Forkel, Chris Foe, Ted Roefs, and Rich Breuer.

General comments made by group:

- Dennis Wilchins was unavailable for this meeting, but should be contacted, since he is drainage coordinator for much of the San Joaquin Valley source area.
- Wheeling of drainage from the Grasslands subarea in a reach of the San Luis Drain is being implemented, and will affect loads upstream of its outlet. Therefore, historical load figures must be used while taking this change into account.
- Although Westlands has not produced drainage for years, flood flows do occur, some on

trace element source watersheds. Protection of trace element source watersheds should be referred to the Watershed Management group for consideration among early implementation actions.

Current water quality programs and constraints
San Joaquin Valley Drainage Program
Water contracts
Water quality standards, e.g. Vernalis
Water quality performance goals. (e.g., Colusa Basin Drain and Sacramento River)
Drainage Reduction Program
SWRCB task force recommendations
District drainage control programs

High Priority Potential Projects

Surface Drainage Source Control

1. Implementation of Integrated Pest Management in surface drainage source areas, especially for parameters of concern. (Action).Because of the primarily pesticide load in much of the agricultural surface drainage in the Central Valley, implementation of IPM practices that reduce pesticide loading is considered to be high priority. Integrated pest management was considered most promising because it has already received substantial research attention and has been widely implemented; however, the group considered that additional funds for extension, as well as other training and education related to integrated pest management would encourage more wide-spread application of existing technology. For example, certain IPM technologies require some start-up training or facilities costs that must be borne by farmers. Incentives could partially defray these costs, thereby encouraging farmers to implement IPM more widely. The potential of precision farming technology to enhance application of IPM technology was noted, along with the possibility of reducing nutrient loads by precision farming. IPM does not necessarily eliminate pesticide use, but rather focuses on cost-effective use of pesticides in combination with other strategies. The project should concentrate efforts on known or suspected parameter source areas/practices, such as dormant sprays, and spraying near waterways. This project should result in reduced pesticide loads and, therefore, reduce pesticide loads to waterways tributary to the Delta.

2. Alter pesticide chemistry and define fate and transport of constituents of concern. (Action)
Research on the fate and transport of currently used and proposed pesticides, and coordination with regulatory agencies responsible for registering these pesticides would be the main activities. The rationale for this project is the following:

- A number of new pesticide chemistries have the potential to reduce pesticide loading or environmental risks of pesticide use. This would result from lower loading of more potent active ingredients, or from identification of active ingredients with lower environmental risks. However, regulatory hurdles for pesticide registration are

currently very rigorous. The cost of registering new materials is high.

- Although monitoring data clearly shows the existence of pesticides at levels that cause environmental concern in Delta waterways, the origin of these pesticides and their mode of transport to these destinations is not completely understood. Therefore, additional research focused on clarifying the fate and transport of these pesticide materials was proposed as a project that could facilitate development of more effective source control programs in the short run.

3. Habitat Enhancement Landowner Program (HELP)
Under this program, sponsored by Farm Bureau Western Growers and Counties opt to participate in habitat enhancement. Landowners designate portions of their land and enhance habitat through revegetation, hydrologic modification, etc. The principles of the program are the following:

- Private landowners control much of the land area that could provide enhanced habitat.
- Much potential habitat lies adjacent through existing waterways.
- Habitat enhancement and water quality objectives can be achieved simultaneously, especially if measures such as filter strips and filtering wetlands and settling ponds are implemented with this in mind.
- To enhance habitat, landowners must be protected from additional Endangered Species Act sanctions. Specifically, farmers participating in the program are protected from incidental and accidental take sanctions that might result from endangered species using habitat created by the program.

Subsurface Drainage Source Control

4. Efficient water management in selenium-source areas.
This measure would include agricultural and irrigation practices that would reduce the amount of deep percolation, while providing for sustainable irrigation practices. The project would be implemented in areas that produce subsurface drainage with high selenium concentrations or in areas that are significant sources of selenium-rich groundwater feeding areas that produce subsurface drainage with high selenium concentrations. Mechanisms for implementation would include Assembly Bill 3616, which requires water conservation plans to be developed by local water districts and additional incentives for improved water management focused on areas with high levels of selenium in shallow groundwater.

Practices implemented in these areas might include improved irrigation practices, such as installation of improved irrigation systems, improved irrigation scheduling. Modifications of cropping patterns was discussed as a means to reduce deep percolation. It was pointed out that cropping patterns are market driven, and for individual farmers may depend on expertise, market conditions, and existing contracts.

5. Storage and timed release of subsurface drainage.

Storage would encompass storage in surface reservoirs, or in the soil, as appropriate. Surface impoundments would be similar to demonstration ponds constructed in the Grasslands subarea to control discharges to the San Joaquin River and improve compliance with downstream standards. Storage in the soil can be achieved by operation of drainage systems, including blocking of drains during certain periods of the year.

6. Tailwater/Tilewater Separation
This project would provide incentives for farmers in selenium-source areas to separate tile and tailwater when tailwater that is not required to provide sufficient dilution so that drainage will meet water quality standards.

Delta Drainage Source Control

7. Temporarily store drainage in wetlands or other impoundments, then time release to avoid creating high concentrations of parameters of concern.

8. Create wetlands to accomplish the following simultaneously:
- Subsidence control
- Levee protection
- Pesticide breakdown
- Settling of sediment

Other Projects Identified

All Source Control

9. Wider implementation of Ecolaboratories (irrigation system performance evaluation)

Surface Drainage Source Control

10. Optimal Tailwater Recovery Systems

These systems would manage agricultural tailwater in keeping with sustainable irrigation practice, but to reduce parameter of concern loadings to waters within the geographic scope. It was noted that tailwater recovery is widely implemented, but that there are certainly opportunities to benefit water quality through broader implementation.

11. Review sludge management in land application systems.

Subsurface Drainage Source Control

12. Fallowing of lands in selenium-source areas through a voluntary program
Lands producing subsurface drainage with high levels of selenium would be fallowed, particularly during drought years. The project would be financed through lease payments to

participating farmers as an incentive to fallow land during these critical periods.

13. Installation of shallow subsurface drains

14. Implementation of drainage water reuse/agroforestry/evaporation pond/solid salt recycling systems on a pilot scale

15. Treatment in wetlands for selenium volatilization

The need for regulatory coordination throughout the CALFED process, especially as actions and projects are pursued, was underlined. The main concern is that CALFED should expend resources on implementable projects, so that regulatory feasibility must therefore be assessed early.

Subsurface Drainage Source Control

16. Fallowing of lands in selenium-source areas through a voluntary program
Lands producing subsurface drainage with high levels of selenium would be fallowed, particularly during drought years. The project would be financed through lease payments to participating farmers as an incentive to fallow land during these critical periods.

17. Installation of shallow subsurface drains

18. Implementation of drainage water reuse/agroforestry/evaporation pond/solid salt recycling systems on a pilot scale

19. Treatment in wetlands for selenium volatilization

WATERSHED COORDINATION

Facilitated by: Judy Heath and Tom Grovhoug

Participants:

Potential Early Implementation Projects

1. Contact Mill Creek Conservancy for their list of candidate projects to improve water quality and/or habitat. Select one or several projects from that list for further consideration [Actions 21 and 29].

2. Assist one or more of the following local programs in their development of a watershed

management plan and in the identification of candidate projects to improve water quality and/or habitat:

a. Deer Creek Conservancy
b. Butte Creek
c. Big Chico Creek
d. Cache Creek (especially mercury control projects)

[Actions 21 and 29]

3. Coordinate and augment ongoing efforts to monitor and control ambient water column and sediment toxicity in the Central Valley and Delta. Efforts may include additional toxicity monitoring (different sites, different times, different test species), toxicity identification evaluations, toxicity reduction projects and other efforts [Action 31].

4. Utilize recommendations from Sanitary Surveys performed in the Central Valley to identify potential projects [Action 21].

5. Provide financial support for toxicity monitoring and evaluation work which is scheduled to lose its funding source with the termination of mill taxes on agricultural chemicals in the near future [only pursue after legislative remedies have been exhausted] [Action 31].

6. Contact other local watershed programs and solicit candidate project lists. Provide broad guidance on these programs regarding the types of projects which are likely to be funded as early implementation projects under the CALFED program [Action 21].

7. Identify best management practices (BMPs) for the control of organophosphate pesticides (specifically chlorpyrifos and diazinon through a pilot study. Coordinate with the ongoing collaborative effort by chemical companies producing these chemicals, agricultural users and state regulatory agencies to develop control strategies and practices [Action 31].

8. Pilot study to provide information for the design of constructed wetlands which will result in removal or no net increase in trihalomethane (THM) precursors. Study would identify probable impact of proposed expansion of wetlands in the Delta [modification of Action 24, 28 or new action].

9. Study to assess the increased loadings in total organic carbon (TOC) from construction of additional Delta wetlands [modification of Action 24, 28 or new action].

10. Augment efforts by ongoing municipal storm water programs to develop BMPs for control of pollutants of concern. Work may include educational programs aimed at control of household pesticide contributions [Action 21].

11. Forest restoration projects which may provide benefits to water quality and habitat (through erosion control) [Action 21].

12. Pilot program to develop BMPs for control of ammonia in dairy discharges. Program would be performed in cooperation with dairy interests [Action 21].

13. Perform concurrent water quality monitoring (e.g. toxicity testing) to supplement fishery studies being performed by the California Department of Fish and Game (e.g. wire tag experimental program) [Action 31].

[Note: For the actions assigned to the watershed group, suggestions 3 and 5 were marked as "hot projects," although the group spent very little time on this determination].

WATER TREATMENT AND WASTEWATER DISCHARGES

Facilitated by: John Gaston and Ed Marlow

Participants: K.T. Shum, Ken Tom, Robert Hultquist, and Bob Berger.

Eleven suggested projects were developed by the group, and a ranking was employed to put them into three tiers as shown below; for each proposed project the associated action is identified, as well as the breakout group member that proposed the project.

Tier 1 (Highest Priority) Projects

1. This project would provide funding to the State of California, Department of Health Services to cover the required "State Match" for the USEPA Safe Drinking Water Act State Revolving Fund (DWSRF) for FY 97 (October 96-September 97), and provide funding to allow upgrading of disinfection and other treatment facilities at small water treatment plants that use Delta water. (Actions 26 & 28A).

2. One of the biggest drinking water quality problems in the Delta is caused by the discharge of agricultural tailwater from the 55 islands in the Delta. The major constituent of concern is Total Organic Carbon (TOC) which forms carcinogenic disinfection by-products when treated with chlorine at water treatment plants. It has been estimated that up to 75 % of the TOC at the water supply intakes may be attributable to these discharges. The Department of Water Resources (DWR)is currently funding and conducting a Phase I Study to attempt to determine if it is feasible to treat this water on the islands and remove a portion of the TOC before the water is discharged back into the Delta waterways. This proposed project would fund the construction of one or more pilot scale treatment facilities based upon the results of the DWR study. The proposed project would also investigate the treatment of any waste streams that might result from the initial treatment processes. Work would be done in coordination with DWR. A rough cost estimate for two pilot plants and the operation and maintenance during the trial period is $ 10 million. (Action 28B)

3. Fund a study to determine the impact of discharges from boats in the Delta and the tributary rivers and streams. An added potential problem is the discharge of hydrocarbons (gasoline) from power boats which may add to the overall toxicity in the Delta, and this study would also attempt to assess the magnitude of that problem. (Action 23).

4. The California Urban Water Agencies (CUWA) and the Sacramento Regional Wastewater Treatment Plant (Sac Regional) are cooperating in a source control study to attempt to reduce the amount of pollutants discharged into the Delta from the Sac Regional plant. This work will include identification of major industrial dischargers within the system which may contribute total dissolved solids (TDS), total organic carbon (TOC), pathogens, and other pollutants to the Delta, and attempt to reduce the magnitude of those discharges through changes to the industrial processes. This proposed project would support that work and supplement the funding being provided by CUWA and Sac Regional. (Action 25).

5. The California Urban Water Agencies (CUWA) are currently conducting a study to assess the impact of elevated levels of total organic carbon (TOC) and bromide (Br) at the various water supply intakes in the Delta. The project is looking at source water quality, treatment being provided by existing water treatment plants, and the amount of disinfection by-products produced. This proposed project would support continuing that work to complete the assessment of the impact of elevated levels of both TOC and Br in the source waters. (Action 26).

Tier 2 (Medium Priority) Projects

6. The water supply intake in the Delta system with the worst water quality problems is the North Bay Aqueduct (NBA) intake at Barker Slough in the northwestern Delta. This location is also thought to be a prime hatchery area for the Delta Smelt. This proposed project would relocate the NBA intake to an area with better source water quality and away from the Delta Smelt hatchery. (Action 28B)

7. This project would be conducted in concert with Project 6 as listed above. There are numerous existing examples of source control and reduction programs in the State of California to reduce metals discharge from industrial facilities. this project would apply the lessons earned at San Jose, Palo Alto and other cities to the wastewater facilities at Sac Regional, West Sacramento, Stockton, Tracy, and other potential candidate dischargers to the Delta.

8. Toxicity testing is being done at existing wastewater treatment facilities, industrial dischargers, some mines and other discrete dischargers within the Delta and tributary system. Toxicity sampling and testing is also being done on ambient water quality samples from receiving waters. This proposed project would provide funding to coordinate the compilation of all of these toxicity testing results to attempt to further refine cause and effect between samples. The work could be done by a variety of public/educational/research agencies already in existence. (Action 31).

Tier 3 (Lowest Priority) Projects

9. The Sacramento Regional Wastewater Treatment Plant is currently operating a wetland near their plant to test the feasibility of employing wetlands to improve treatment of their discharge. This proposed project would support that effort and provide additional resources to determine pollutant loading and removal in the designed wetlands. (Action 24).

10. The City of Stockton is considering the development of a water reclamation project to treat and transport reclaimed water from the existing wastewater treatment plant to the harbor area to promote flushing of that portion of the San Joaquin River and the ship channel. This project may help relieve the dissolved oxygen problems that periodically occur in the lower San Joaquin River. The project proposed would provide funding to construct that project. (Action 27).

11. This project is a follow on to Project III; if that project determines that boat sewage discharges are a problem, this project will provide floating restrooms similar to those employed on State Project Reservoirs and a mobile pumpout facility to empty holding tanks on boats within the Delta where the highest bacteriological contamination is seen. (Action 23)

Following the break-out group sessions, each group reported back to the WQTG on their session results. Rick then mentioned the project characteristics that would be considered when evaluating projects for early implementation. These characteristics include:

- **Physical Projects** (as opposed to planning and monitoring projects)
- **Cooperative and Collaborative Projects** (as opposed to regulatory projects)
- **Projects that meet the CALFED Solution Principles**

COMMENTS AND RESPONSES

Comments on Dilution Actions

Comment: Is it realistic to use source control efforts to address the San Joaquin drainage problem?

Comment: At what level within CALFED was the decision made to exclude the San Joaquin Drain from actions?

Response: That decision was made at the policy level.

Comment: CALFED cannot address the San Joaquin River water quality problems without considering the San Joaquin Valley Drainage Program.

Comments on Project Selection Criteria

Comment: Before CALFED money is spent, pilot programs to determine the problems in the Bay-Delta should be initiated to ensure that funds are spent on the most effective

projects. Monitoring projects should not be eliminated because of the amount of unknown toxicity throughout the Bay-Delta.

Comment: How will criteria be set for evaluating projects and determining which should be funded?

Response: CALFED management all groups included in the refinement report will be involved in developing selection criteria.

Comment: The first projects to be funded by CALFED should be those that have been studied extensively and reviewed by the public. For example the San Joaquin Valley Drainage Program. The San Joaquin Valley Drainage Report recommendations and CALFED conflict needs to be rectified.

Response: Consideration of the amount of research and public review of a project is a good approach.

Comment: The primary criteria for evaluating projects should be the greatest water quality benefit per dollar.

Response: CALFED will need to consider the degree of water quality benefit when evaluating potential projects for early implementation.

Comments on Project Refinement

Comment: Will some of the more general projects be refined?

Response: Yes, some projects need to be more specific to increase the likelihood of their early implementation.

Comment: When defining projects, a distinction between testing and monitoring needs to be made.

Comment: The Sacramento River watershed group may be able to assist CALFED with selection of projects.

Comment: It is important to make the distinction between monitoring of projects to assess their effectiveness and research monitoring to define a problem.

Comment: How will CALFED account for liability issues associated with mine drainage projects and other projects?

Comment: Sanitary surveys include recommendations that may be valuable as CALFED projects.

Comments on Water Quality Ranges

Comment: The water quality target ranges are problematic because once they are published, they may serve as the basis for the adoption of new water quality standards.

Response: The water quality target ranges for the EIS/EIR process are general targets and are not meant to be regulatory.

Comments on the CALFED Process

Comment: How do the projects that have been identified by each group relate to the future CALFED EIR/EIS process?

Response: All projects will be evaluated for their relevance to the CALFED EIR/EIS process.

Some projects that have been identified will be incorporated into the CALFED EIR/EIS process.

Comment: Will projects the water quality group identifies that are related to other programs within CALFED be provided to those programs?

Comments on Stakeholder Representation at CALFED Meetings

Comment: How will CALFED account for the lack of representation of many groups?

Response: CALFED is trying to identify and reach out to a broad cross section of the community. More than 100 invitations were mailed for this meeting.

Comment: The Bay Area Stormwater Management Agencies Association (BASMAA) should be consulted when determining the contribution of nonpoint source pollution to the Bay-Delta.

Comment: The Urban Water Quality Task Force meets regularly and may be a valuable source of information for CALFED.

Comment: Many watershed groups are suspicious of CALFED and other government programs. In order to make these groups more receptive to CALFED, representatives should meet with watershed groups to establish trust and understanding. These meetings should be held in areas outside of Sacramento, in such areas as Red Bluff and Chico.

Response: CALFED would be happy to meet with watershed groups within the next few weeks.

Comment: The CALFED time frame limits the ability of CALFED representatives to outreach with watershed groups and others. CALFED seems to be moving quickly and spending money quickly. This may leave CALFED open to criticism later. In the future, taxpayers will want to know what problems CALFED identified, how CALFED addressed the problems, and the success of these efforts.

Response: CALFED must move forward while simultaneously evaluating the potential success of projects.

Agreements

Comments on projects and water quality ranges should be provided to the CALFED Water Quality team by January 10, 1997.

The CALFED Water Quality team is in the process of revising the Analytical Plan and will provide it to the group as soon as possible.

Future Meeting Schedule

To be announced: CALFED Public Workshop
January 30, 1997: BDAC Meeting
February 14, 1997: Water Quality Technical Group Meeting